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Preface.

The future destiny of the world is always the work of the mother.—Bonaparte.

To be the mother of a strong, healthy child; to watch over it, to wisely minister to all its physical wants; to lead and guide it with wisdom in the early formative period of its life, is a privelege and a responsibility that no other prerogative or obligation in the life of any man or woman outweighs. Yet, year after year, thousands of women without any training, without one word of instruction, without even a knowledge of the character and significance of the duties they are about to assume, take up the tremendous responsibility of motherhood.

It is not to discourage their assumption of duties so fraught with grave responsibilities that these few pages are written, but rather to proffer some practical advice and offer some helpful suggestions which might lead them to reject unwise counsel and guide them in the discharge of the most exalted and sacred duties that fall to womankind.

Competent writers have not wholly neglected the subject to which these few chapters are devoted, and the excuse for this small volume is not found in the need of more learned advice.

The one single goad that probably more than any other spur incited the writer to undertake the preparation of still another little book for mothers and those intrusted with the rearing of children, has been the oft repeated complaint of a perplexed mother of more than ordinary intelligence, after seeking the information from pages written for her instruction, "I can't understand it."

To make plain the matter presented and to present only essential matter, eliminating confusing details which, though critical exaction would demand, tend but to defeat the recognition and application of essentials, has been the purpose of the writer.

For the somewhat Ruskinian title no other excuse is offered than the suggestion of associations.

O. I. H.

March 18, 1911.

Catnep and Fennel.

CHAPTER I.

The Mother To-Be.

Hail wedded love, mysterious law, true source
Of human offspring.—Molton.

Have you ever considered how many persons beside ourselves have helped, or hindered, in our making? Our parents, our grand-parents, our great-grand-parents, and on back through hundreds of generations, our ancestors have been either correcting defects or making them. Far back along the ancestral line some one gave us a beautiful, strong body; muscles like hickory withes, never tired; heart and lungs pulsated in healthy, rhythmic harmony; all the organs functuated in normal mutual accord, and we were happy just to live. But one after another in succeeding generations our forebearers marred or mended that body; stole away the bloom from the cheek, the elasticity from the muscles, the rhythm from the heart, or the resilience from the

lungs; or brought back some glow to the faded cheek, some tone to the flabby muscles, some vitality to the weakened tissues of the lungs, or nervous equilibrium to the unsteady heart. The destructive processes, however, have gone on more rapidly than the reconstructive processes, the builders have not always kept pace with those who destroy, and children are coming into the world every day physically unfit to make a winning fight in the fierce conflict that is ever driving the weakest to the wall.

The mother to-be may contribute in no small degree to the physical, and moral, and mental well-being of her offspring. The fairest flowers and the finest fruits are borne by plants and trees best nourished, and therefore she who is to nourish another must needs be well nourished herself, and whatever contributes to the health of the body and mind should be generously supplied.

The diet should consist of all nutritious, easily digested articles of food. It is not necessary that she should change the quality of her diet if it has been a nutritious one, nor should she allow herself by any means to be persuaded to adopt any specific diet with the foolish promise that thereby she may escape

the pains of labor. The growth and development of the child before birth as well as after birth, is retarded by a lack of nutrition. Arrested or retarded development before birth, due to improper restrictions placed on the mother's diet resulting in faulty nutrition of the child, of course means a smaller child with flabby tissues at birth; but it also means less vitality, less power to adapt itself to the new environment—to resist the ills that may come with the new and untried conditions. There is a close relation between the weight and the vitality of a child at birth.

During this period large quantities of oxygen are consumed, and hence the importance of being much in the open where an abundance of fresh, pure air may be had, and of avoiding close, ill ventilated rooms, or long confinement in-doors.

The regular ordinary duties of life, if not injurious to health, may be pursued throughout the greater portion of the period of gestation. In fact it is desirable and important that some agreeable occupation should engage both body and mind. Violent exercise is of course to be avoided, and especially at the recurrence of the menstrual epochs.

The dress should be loose, and no constricting bands should be allowed on any portion of the body. It should, however, thoroughly protect the body from cold and dampness.

All the emuncturies should be kept active. The skin particularly should be kept in good condition by daily baths, as the kidneys are thereby relieved of a portion of the heavy burden thrown upon them at this time.

Birth marks and deformities are not caused by shocks or strong emotions experienced by the mother, notwithstanding the countless cases cited to prove the contrary by friends who are anxious to comfort the mother. Nevertheless there are no structural modifications, however slight, no functional peculiarities however insignificant, that may not be, and are in a measure at least, especially when hereditarily acquired through many antecedent generations, transmitted from the mother to the child. Nervous impressions, a strong emotion, an overpowering passion, may influence the development of the offspring by inducing changes in the nutritive processes leading to congenital debility, retarded growth, or even arrested growth and death. If the permanent, fixed traits of character and temperament may

be transmitted from the mother to her offspring, then in some less degree, at least, may those cultivated traits of mind and heart and recently acquired physical vigor leave their impress on the child to-be.

Finally, if you value your peace of mind, turn a deaf ear to garrulous old women, and to young ones too, with glowing imaginations and unreliable memories, to whose ardent natures the common, ordinary happenings of life are tame and insipid, and who, were they permitted,

"Could a tale unfold, whose lightest word
Would harrow up thy soul; freeze thy young blood;
Make thy two eyes, like stars, start from their spheres;
Thy knotted and combined locks to part,
And each particular hair to stand on-end,
Like quills upon the fretful Porcupine."

When perplexing questions arise and you feel the need of advice, consult a physician in a frank, free, inquisitive spirit, and get the full benefit of the consultation by adhering strictly to his advice.

CHAPTER II.

The Real Mother.

A mother is a mother still,
The holiest thing alive.—Coleridge.

Having successfully passed through a somewhat trying and physically exhausting ordeal—the culmination of which introduced into the problem of the human race a factor concealing a potentiality which may change the course of human events and modify the final history of mankind—the mother should receive that care and attention which will guard against untoward complications and contribute to her speedy recovery. After being washed and placed comfortably on a clean bed, the room should be darkened and made quiet to insure, if not refreshing sleep, a few hours of restful repose. During the first few days at least, visitors should be rigidly excluded from the lying-in chamber. If congratulations are insisted upon let them be put in writing; they will be appreciated more when the mother is stronger, and she should be protected from her

friends and not allowed to become "the victim of traditional prejudices and superstitions."

The Diet. For the first two or three days the diet should be of a nutritious liquid or semi-liquid character, such as milk, gruel, cocoa, milk-toast, bouillon, etc., to be followed as rapidly as may be without over-feeding, with easily digested solid foods including soft boiled eggs, steak, chicken, chops, etc. Many women are kept in a half starved condition which retards the return of strength and interferes with the secretion of sufficient milk for the child.

When May the Mother Get Up? No dogmatic rule can be laid down for guidance here. One woman might leave her bed with impunity on the fourth or fifth day while another would incur grave risks by leaving it on the tenth. The one thing to remember is that a long series of ills may result from getting up too soon. "Womb trouble" or "inward weakness" means very often that subinvolution has been caused by the mother leaving her bed and resuming her duties too soon after confinement. While a woman may in most cases leave her bed on the tenth day without any ill ef-

fects, the attending physician should always determine the time. It is, however, the better plan to take two or three days to get up, sitting up and lying down alternately before permanently leaving the bed. It may be necessary to remark that neither combing the hair nor changing the posture of the body while confined to bed, is dangerous to the patient, but rather is conductive to her comfort and convalescence.

Nursing. In these days when truth is enforced by the logic of statistics, any healthy woman who refuses to nurse her child becomes an accessory to the crime of Infant Mortality, and she should leave the perpetuation of the race to those who are endowed with the maternal instincts of the true mother.

For the first six weeks at least, the nursing child returns to the mother benefits equal to those it receives in nourishment from her. The mother who nurses her child regains her usual figure in a short time and enjoys better health than one who does not. The sucking of the child stimulates the contraction of the womb and promotes normal involution, thus largely eliminating the cause of pelvic disease in women. If all mothers nursed their children,

infant mortality would be reduced to normal and the quack advertisers of remedies for "female weakness" would find their infamous occupation gone.

The milk of every healthy mother agrees with her child. The new-born child after being put to the breasts frequently has green passages due to the normal healthy action of the colostrum or first secretions of the mother's breasts, in eliminating the meconium, or early contents of the baby's bowels and cleansing out the digestive tract for healthy action. This natural, healthful, beneficial process is often gravely interpreted by some officious person to mean, "too rich milk," or "too thin milk," or "the milk doesn't agree with the baby" and forthwith nature's methods are set aside, and castor oil and weaning transfers the unoffending and defenseless infant to the ever increasing and ever thinning ranks of the proscribed, the bottle-fed.

The large majority of mothers can nurse their children, and should, unless they are epileptics or consumptives. It has been shown that in institutions where nursing was optional, only 23 per cent. were able to nurse, while when nursing became compulsory, nearly

100 per cent. of the mothers were able to nurse their offspring.

A mother's milk may fail from various causes, many of which may be removed and a sufficient secretion reestablished. Any strong emotion as fear, grief, anger, despondency, may arrest the secretion. The mere mention of a few trifling transient defects, such as colic, green stools, curds, vomiting, etc., to a young and inexperienced mother, anxious to nurse her child, is often sufficient to produce a mental state which reacts by arresting the secretion of milk.

By attention to diet, habits of life and the general health; encouraging the use of larger quantities of liquid food, out-door life, rest, if necessary, and refreshing sleep, more can be done in reestablishing a waning secretion of milk than by any other means. Stimulating the breasts by a strong vigorously nursing infant or by the use of a breast pump will aid in restoring the sercetion, especially when it has diminished on account of the feeble efforts of a weak child or of a child that has been given water or food from a bottle with a free flowing nipple, or nursing has been interfered with on account of sore nipples. And it may

be well to remark here that nipples that have been treated for a month or two before confinement with daily applications of glycerite of tannin and washed before and after nursing with a solution of boracic acid—15 grains to two tablespoonsful of boiled water—will rarely become sore.

As to medical treatment of insufficient secretion of milk, there is nothing to recommend, and the abominable practice of nursing mothers swilling themselves with ale, porter, and beer, is to be condemned as injurious to mother and child alike. Any increase in the flow of milk caused by these alcoholic drinks is more than offset by its deterioration in quality, making it an unfit food for the nursing child. Rotch cites a case of an infant that vomited for weeks while its mother was guzzling large quantities of porter, but ceased when the porter was discontinued.

CHAPTER III.

The Baby.

Breast Feeding.

Not in entire forgetfulness,
And not in utter nakedness,
But trailing clouds of glory, do we come
From God, who is our home:
Heaven lies about us in our infancy.—Wadsworth.

What the next generation will be depends on who nurse the babies today, as what the harvest will be depends on who cultivates the plants, or the flock on who cares for the lambs.

Millions of dollars are spent on the scientific study of domestic animals with a view to their improvement, and millions more in the study of soils, and plants, and grains, and fruits. We have come to know all about raising potatoes and pigs, but the raising of babies has been left largely to the traditions and superstitions of old grannies, or like Topsy, they have "jest growed" as best they could.

"The sabbath was made for man, and not man for the sabbath," and neither is the baby born for thorough-bred stock, or blue ribbon

fruits and grains. The conservation of our forests, of our mineral resources, of our waterways, of all our public domain is important, but more important than this is the conservation of our little ones who alone make conservation of any value.

But while no public experiment stations have been established for the study of the baby and its needs, yet in recent years much thorough scientific observation, investigation, and study along these lines, have been made by competent persons, and the value of the knowledge they have gained has been demonstrated by the great benefits derived from its practical application in the care of infants.

Based on this scientific knowledge and the experience gained in its practical application, the following instruction, rules and regulations are submitted for the guidance and assistance of mothers and others who would wisely minis ter to the needs of infants in their charge.

The cord having been tied and cut the baby should be thoroughly cleansed by first anointing with olive oil or clean lard to remove the sebaceous coating, or cheesy varnish—vernix caseosa—and then washed with castile soap and water at a temperature between 98 and

100 degrees F., when it is dressed and laid down where it will not annoy the mother by its crying while she secures a few hours of needed rest, after which, or within ten or twelve hours from the completion of labor, it should be put to the breast.

Proposition. The milk of every healthy mother agrees with her child.

Rule 1. Every healthy mother should nurse her child.

These statements have been made before and are again made in the above form for emphasis.

Rule 2. The baby should be put to the breast at regular intervals.

Irregular nursing, or two frequent nursing, or nursing at too long intervals, modifies the quality of the milk, interferes with the nutrition and growth of the baby and may finally lead to serious indigestion.

Rule 3. The intervals of nursing should grow longer as the baby grows stronger.

During the first two or three days the mother is able to supply little or no milk for her infant and scarcely any food is obtained

by the nursing baby, but as before stated, nursing benefits both mother and child and therefore the child should be put to the breast at intervals of three or four hours during the day and once at night for the first two days. On the third day and to the end of the fourth week, the intervals should be two hours during the day with two nursings at night; from the fourth week to the end of the third month, two and one half hour intervals during the day with one or two feedings at night, and from three months to the end of the year the intervals should be three hours during the day without any night nursings.

These regulations are merely tentative and must not be considered a hard and fast rule never to be violated. Development and age are not uniformly correlated. Some children grow and develop faster than others, and an under-developed baby should be nursed at shorter intervals than a strong and rapidly growing baby. The good judgment of the mother, or the advice of the physician must be the final counsel.

The following table will show at a glance the average intervals of nursing as related to age.

AGE	Length of Nursing Intervals from 6 A. M. to 10 P. M.	Night Nursings
Birth to 2 days.....	Nurse every 3 hours	1
2 Days to 4 weeks....	Nurse every 2 hours	2
4 Weeks to 3 months..	Nurse every 2½ hours	1
3 Months to 12 months	Nurse every 3 hours	0

Rule 4. The baby should be left at the breast until it is satisfied.

"To paint the lily or gild refined gold is ridiculous excess," but to stand over a nursing infant, watch in hand, calling time like an umpire in a prize fight, prodding it into action should it relax its efforts to smile its satisfaction or to rest its tired muscles, or be wooed to sleep by the one conscious pleasure of its infant life, before the pleasure has been exhausted by the complete gratification of its appetite, is not only ridiculous excess, but refined cruelty. Yet we are told with much positiveness that twenty minutes is the time fixed in which a baby shall take its meal, and that it is not to be allowed to fall asleep, or drop the nipple, or smile, but to be kept strictly at business until the time expires, when the nipple is to be removed.

There are reasons enough why a baby should not be allowed to tug at the breast in a desultory way for three quarters of an hour or more, but there are no reasons why it should be treated like a mere machine. If it stops after nursing a few minutes, it may be fatigued and needs rest, and while resting it may fall asleep, but what if it should rest or sleep a few minutes, when gently aroused it will finish its meal, probably within the prescribed twenty minutes, possibly not, but still it should have a "square" meal, and be given a reasonable time to get it.

Washing the Baby's Mouth. It has been recommended that the baby's mouth be washed after each nursing; more harm than good is liable to be done by swabbing or mopping out a baby's mouth so frequently. As a prophylaxis or matter of cleanliness, once or twice a day is sufficient. Sore mouth or sprue will not likely develop if the nipples are kept thoroughly clean by washing them before and after each nursing with a solution of boracic acid or common salt, three teaspoonsful of either to a pint of boiled water.

Water is needed in infancy as well as in after life. One half teaspoonful should be

given at first two or three times a day between nursings, increasing the amount and frequency as the baby grows older. It should never be given at meal time, nor from a nursing bottle, as sucking the rubber nipple may lead the baby to refuse the breast.

The Pacifier or Sugar Teat is a Dirty, Dangerous, Device that should never be allowed to pollute and deform a baby's mouth. It stimulates a continuous flow of saliva, thus interfering with digestion; the constant sucking abnormally develops the muscles of the lips, cheeks, and mouth, changes the shape of the gums, often producing protruding teeth, and favors the growth of adenoids.

Weaning. Rule 5. The mother's milk not being a proper food for a healthy growing baby after the first year, weaning should be completed by the time the infant is a year old.

Weaning from the breast should be gradual, beginning at the ninth month by substituting one feeding of modified cow's milk for one nursing the first day, and in two or three days substituting another feeding from the bottle for the breast, and so on, gradually increasing the number of feedings from the bottle and decreasing the number of nursings.

It is better to arrange the feedings, especially at the beginning, so that a breast feeding will precede and follow the feedings from the bottle.

Rule 6. In weaning an infant from the breast at any time, the substituted modified cow's milk should be of the same strength as that prescribed for an infant of one half the age when fed exclusively on modified milk.

After the infant's stomach has become accustomed to the modified milk, the strength can be rapidly increased until it corresponds to that usually prescribed for one of its age.

Toward the close of the first year the baby's stomach has so developed that it can digest starchy foods to some extent, and we may begin to give a greater variety of food. Unmodified cow's milk may be given, in small quantities at first with a little lime water in it; some stale bread and milk; well cooked cereals; weak meat broths, toast, raw egg beaten up with milk, baked apple, fruit juices, etc.

If the baby is healthy, it may be advisable to nurse a little longer rather than wean during the hot summer months.

tempt the artificial feeding of the infant to-day with more assurance than ever before; and if the infant has been breast-fed for six weeks or two months, we may approach the task with confidence. Cow's milk is the most available substitute for woman's milk, and if properly selected, and properly prepared, and properly administered, it is the best substitute that we can get. Milk from highly bred Guernseys, Jerseys, and Alderneys is not satisfactory for infant feeding. Mixed milk from a herd of common grade cows should be selected.

Having selected the proper source of food supply, then adhere strictly to the following rules:

Rule 7. Strict cleanliness must be observed in handling the milk for the baby's food from the time it leaves the cow until it reaches the baby's lips.

It may not always be possible to exercise supervision of the handling of the milk so complete as this rule implies, but we can use discriminating care in selecting the source of the supply and permit no deviation from the rule when handling the milk ourselves.

It is not the absence of any visible foreign

CHAPTER IV.

The Baby.

Bottle Feeding.

In persons grafted in a serious trust,
Negligence is a crime.—Shakespeare.
There is nothing insignificant. Nothing.—Coleridge.

While the mortality of breast-fed babies has been given at 11 per cent. and that of bottle-fed babies at 89 per cent., this high mortality can be traced to a lack of knowledge and negligence on the part of those to whom the care of these helpless little ones has been committed. Eternal vigilence is the price of success here as it is the price of liberty. "Nothing is insignificant." In the care of the bottle-fed infant every detail must be attended to.

With our better knowledge of the component parts and their proportions of the natural food of the infant, human milk, and its most available substitute, cow's milk, and with our present knowledge of infant physiology and the knowledge given us by physiological chemistry and practical experience, we can at-

frigerator, or wherever the milk is kept, should never show a temperature above 50 degrees Fahr.

Presuming that a clean steril supply of milk has been placed in the refrigerator in sealed bottles, there still remains that one grave source of contamination before it reaches the baby. The nursing bottle is a fountain of life, or a beguiling draught of disease and death.

Rule 8. The nursing bottle should be thoroughly cleaned and sterilized inside and outside by washing and scalding immediately before and after using.

Since the nursing bottle must be kept clean, one should be selected that can be kept clean. A cylindrical graduated bottle with a large mouth and without any crevices or irregularities on the inside, should be selected, as such a bottle can be cleaned inside as well as outside. It should hold eight ounces, a full meal for a child one year old. There is no advantage in having as many bottles as there are meals to prepare in the twenty-four hours, as is so often recommended. In fact it is a question as to whether a dozen bottles would be as well cared for as one or two.

The nursing bottle should be cleaned as di-

matter in the milk that is proof of its fitness for food. A glass of water may be as clear as crystal and yet be alive with virulent bacteria or germs of disease. Yet this visible foreign matter is often, usually is, the carrier of germs; and while it may be strained out, germs remain behind to carry disease to the infant.

Quart glass jars or bottles sterilized by boiling, should be the first receptacle to receive the milk under hygienic conditions from the cow, and should then be sealed and reduced quickly to a low temperature and kept at not above 50 degrees Fahr., until delivered for use.

When milk cannot be obtained under these ideal conditions, then it must be obtained as fresh and clean as possible, and should be at once strained through cheese-cloth into quart bottles, previously sterilized by boiling, and immediately reduced to a temperature below 50 degrees Fahr., and kept at as low a temperature as possible until used. By quickly cooling the milk to a low temperature as soon as possible after leaving the cow, it will keep much longer than it otherwise would. Low temperature is unfavorable to the multiplication of germs and the development of toxins or poisons in the milk, and therefore the re-

frigerator, or wherever the milk is kept, should never show a temperature above 50 degrees Fahr.

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The nursing bottle should be cleaned as di-

rected, immediately after the baby has finished its meal, when the bottle may be refilled from the supply bottle, corked with absorbent cotton and placed in the refrigerator until needed; or after cleaning it may be wrapped in a clean napkin or towel and laid away until needed, when it may be scalded and filled from the supply bottle. This method of caring for the bottle is to be preferred to that usually recommended of filling them with cold water to which a small teaspoonful of borax or baking soda, bicarbonate soda, is added and allowing them to stand open, exposed to dust and dirt and flies.

As two feedings at night will be necessary part of the time, it will be convenient to have two bottles, during this time at least, which may be filled after the last day nursing and kept ready in the refrigerator—never any other place during warm weather—until needed.

The Nipple, which should be a simple straight nozzle made of black rubber, to slip over the neck of the bottle, with a hole just large enough to allow the milk to drop rapidly when the bottle is turned up or inverted, demands the same attention as the bottle. New

ones should be boiled a few minutes before using, and thereafter cleaned thoroughly after each feeding, turning them inside out to remove any particles that may cling to the inner walls, and when clean, placed in a solution of borax or bicarbonate soda in a covered glass or cup, or dried and wrapped in gauze and laid away. After a nipple has lost its resilience or springiness it should be replaced by a new one.

The nursing bottle should never be allowed to remain at the baby's side in the cradle or crib to be nursed at periodically as either hunger or caprice may prompt, or to allure the polluting presence of the busy house fly, the dangerous pest of too many homes. The proverbial "busy bee' is a snail compared to the activities of the house fly in promoting business. It can stick its head into the nursing bottle, or a dirty foot on the baby's lip, and start a series of sequences that will wear the life out of mother and nurse, tax to the utmost the skill of the best physician for weeks and at last hang crepe on the door and give work to the sexton and business to the undertaker. Wage unrelenting warfare against the house fly, and protect with zeal-

ous care the baby and its bottle from this menacing foe.

Modifying Cow's Milk. The food elements in all milk are fat, sugar, and proteids; but there is considerable variation in the relative proportions in which they occur in human milk and in cow's milk, and for this reason cow's milk, to be digestible for the infant, must be so modified that the relative proportion of these food elements will correspond more closely to that which obtains in good mother's milk. Cow's milk has over twice as much proteids and a little more than half as much sugar and about the same amount of fat, as human milk. Fat and sugar are the heat and energy producing foods, the builders, and proteids the material with which they build. Proteid is the vital constituent of every cell of the body. Proteid and minerals in organic union, are the brick and mortar of every tissue of the body, and the normal building process, the healthy growth of the body, cannot proceed when these materials are not supplied in their normal relations and in the proper portions to those other essential food elements in their proper proportion as all are found in good mother's milk.

Our problem, then, is to take cow's milk, the most available substitute for mother's milk, and reduce the quantity of proteid, increase the sugar, and hold the fat at about the same proportion, remembering that the fat and proteids of cow's milk are not so easily digested by the infant as those of mother's milk.

By diluting whole or plain cow's milk two or three times with water, and adding sugar, we would get about the proper proportion of sugar and proteids, but the fat would be far below what is required; we must therefore take a milk that is higher in fat, that is, cream, and by diluting it with water and adding sugar, and lime water to correct the natural acidity of cow's milk and to aid emulsification, we can solve our problems fairly satisfactorily.

The milk should be clean and fresh when received and should be poured into quart glass milk jars, which should be placed in an upright position in the refrigerator and allowed to stand for twelve or sixteen hours. The cream found in the upper portion of the jar is called "gravity cream," and is much better for infant feeding than "centrifugal

cream," a cream obtained mechanically by passing whole milk through an apparatus called a separator. The changes induced by the violent physical stress to which milk is subjected in the process of separating centrifugal cream, renders this cream less digestible and less nutritious.

Preparing the Day's Supply of Food. From the two full quart jars or bottles of milk which have stood in the refrigerator for twelve to sixteen hours, carefully remove from each jar—when preparing the formulas of Table No. 1 you must have two full quart jars of milk, while but one jar is needed in preparing the formulas of Table No. 2—with a spoon or dipper—never pour—the amount of top milk or cream from which the day's supply must be taken; if not all used it can be returned to the bottles; take the amount of pure cold water required and dissolve in it the necessary amount of milk sugar, and mix this with the top milk or cream, after which the lime water is added; the food thus prepared is poured into glass jars or bottles which are closed and placed in the refrigerator as the stock supply from which the day's food is drawn.

The best method for obtaining the amount

of top milk needed for preparing the day's food is to siphon out from the bottom of the jar what is not needed. This is done by taking a piece of glass tube with a caliber or hole of about one-fourth inch and bending it by holding it over the flame of an alcohol lamp, so that the short leg or end will reach just to the bottom of the jar and the long end extend a trifle below the bottom on the outside. Hung thus over the edge of the jar, and the milk started to flow through the tube, any portion of the milk may be removed without disturbing the top milk, which is important. To start the milk to flow, fill the tube with clean water, close with the finger the opening in the long leg of the siphon and slip the short leg into the jar, when if the finger is removed, the water will flow out followed by the milk. A rubber tube may be used in the same way. If the upper 16 ounces are to be used, you can leave it in the jar by siphoning out the lower 16 ounces; or if the upper eight ounces are to be used, you can leave it in the jar by siphoning out the lower 24 ounces. Thus any portion of the upper or top milk can be obtained without mixing the different layers.

The following tables show the amount of top milk or cream, the amount of water, lime water, milk sugar, and oat-meal or barley jelly to be taken in preparing the food for each day in successive periods of the infant's age. The figures under "Oat-meal or Barley Jelly," and "Milk Sugar," indicate even teaspoonfuls, and the amount of jelly is to be added to the nursing bottle at the time of feeding, this addition being made to the food at the seventh or eighth month as indicated. Figures under the other ingredients indicate ounces.

To Use the Tables. If we want to prepare a day's food supply for an infant in its first week, by the first table, we take ½ ounce of top milk from each quart jar, 7 ounces of water, 2 ounces of lime water, and 6 even teaspoonfuls of milk sugar. To feed, we put one ounce of this mixture in the nursing bottle, the amount to be given every two hours. If we want to prepare a day's food supply for an infant in its eighth week, we take 5 ounces of top milk from each quart jar, 13 ounces of water, 4 ounces of lime water, 6 even teaspoonfuls of milk sugar. To feed, we put 3

ounces of this mixture in the nursing bottle, the amount to be given every 2½ hours.

If we want to prepare a day's food supply for an infant in its third month, we take 6 ounces of the upper 10 ounces of each quart jar, that is, we would siphon off the lower 22 ounces of each jar, leaving 10 ounces of top milk in each jar; these 10 ounces are stirred up and 6 ounces taken from each jar, 12 in all; to this we add 12 ounces of water, 4 ounces of lime water, and 6 even teaspoonfuls of milk sugar. To feed, we put 3½ ounces in the nursing bottle, the amount to be given every 2½ hours. If we want to prepare a day's food supply for an infant in its eighth month, we take 30 ounces of whole milk, that is, a quart jar is thoroughly shaken to mix, and 30 ounces poured out to which we add 8 ounces of water, 4 ounces of lime water, and 5 even teaspoonfuls of milk sugar. To feed, we put 7 ounces of this mixture and 2 even teaspoonfuls of oat-meal or barley jelly into the nursing bottle, the amount to be given every 3 hours.

By the second table if we want to prepare a day's food supply for an infant in its first five days, we take 1 ounce of the upper 16

ounces of a quart jar, that is, the lower 16 ounces are siphoned off, or the upper 16 ounces are carefully removed, shaken to mix, and 1 ounce of this, 9 ounces of water, ½ ounce of lime water, and 6 even teaspoonfuls of milk sugar. To feed, we put an ounce of this mixture in the nursing bottle, the amount to be given every two hours. If we want to prepare a day's food supply for an infant in its tenth month, we take 24 ounces of the upper 24 ounces, that is, from a quart jar we siphon off 8 ounces from the bottom of the jar leaving the 24 ounces to which we add 20 ounces of water, 4 ounces of lime water, and 4 even teaspoonfuls of sugar of milk. To feed, we put 8 ounces of this mixture in the nursing bottle and 3 even teaspoonfuls of oatmeal or barley jelly, the amount to be given every 3 or 4 hours.

TABLES OF FOOD FORMULAS.

Table No. 1.

Top Milk From Each Jar	Water	Lime Water	Milk Sugar	Each Feeding	Feeding Intervals	AGE	Oatmeal or Barley J.lly
½	7	2	6	1	2 hours	1st week	
1½	10	2½	6	1½	2 hours	2d week	
2	12	4	6	2	2 hours	3d week	
3	16	4	6	2½	2 hours	4th week	
3	15	4	6	3	2½ hours	5th week	
3½	14	4	6	3	2½ hours	6th week	
4	13	4	6	3	2½ hours	7th week	
5	13	4	6	3	2½ hours	8th week	
6 of Upper 10....	12	4	6	3½	2½ hours	3d month	
6½ Upper 11....	13	4	6	4	3 hours	4th month	
7 Upper 12.....	14	4	6	4½	3 hours	5th month	
7½ Upper 13....	15	4	6	5½	3 hours	6th month	
8 Upper 15.....	16	4	5	6	3 hours	7th month	1
30 Whole Milk....	8	4	5	7	3 hours	8th month	2
34 Whole Milk....	10	4	5	8	3 hours	9th month	3
44 Whole Milk....	00	4	4	8	3 to 4 hours	10th month	4
44 Whole Milk....	00	4	4	8	3 to 4 hours	11th month	6
44 Whole Milk....	00	4	4	8	3 to 4 hours	12th month	8

The large majority of infants will do well and grow round and rosy on the above formulas when carefully prepared and properly administered, but occasionally there is one that cannot digest so high a percentage of fat as found in the above formulas, and when this is the case it should be put on some one of the formulas found in Table No. 2.

Table No. 2.

Top Milk or Cream	Water	Lime Water	Milk Sugar	Each Feeding	Feeding Interval	AGE	Oatmeal or Barley Jelly
1 of Upper 16.....	9	½	6	1	2 hours	To 5th day	
2 of Upper 16.....	12	1	7	1½	2 hours	1st & 2nd week	
4 of Upper 16.....	15	1	8	2	2 hours	3rd week	
5 of Upper 16.....	17	3	8	2½	2 hours	4th week	
6 of Upper 16.....	15	3	8	3	2½ hours	5th week	
7 of Upper 16.....	14	3	8	3	2½ hours	6th week	
8 of Upper 16.....	13	3	8	3	2½ hours	7th week	
9 of Upper 16.....	12	3	8	3	2½ hours	8th week	
10 of Upper 16.....	14	4	8	3½	2½ hours	3rd month	
11 of Upper 16.....	13	4	8	4	3 hours	4th month	
12 of Upper 16.....	15	4	8	4½	3 hours	5th month	
14 of Upper 16.....	15	4	8	5½	3 hours	6th month	
16 of Upper 16.....	16	4	8	6	3 hours	7th month	
18 of Upper 18.....	20	4	5	7	3 hours	8th month	1
20 of Upper 20.....	24	4	5	8	3 hours	9th month	2
24 of Upper 24.....	20	4	4	8	3 to 4 hours	10th month	3
36 Whole Milk.....	8	4	4	8	3 to 4 hours	11th month	4
44 Whole Milk.....	0	4	4	8	3 to 4 hours	12th month	6

The fat and proteids in the formulas of the first table are of about the same percentage and in the same proportion as those found in good mother's milk; in the second table they are lower, and may be made still lower and of nearly equal percentage by substituting whole milk for "upper milk" in the formulas of the second table, using the other ingredients in the same proportion as given in the table. In some cases it may be necessary to prepare food in this way. Farinaceous foods —gruels of wheat, rice, barley, and oat-meal —should never be added to the baby's food until the seventh or eighth month, as before that time the digestive functions are not sufficiently developed to utilize much starchy food. Such food, however, should become a part of the baby's diet during the latter months of the first year, as indicated in the tables given. It can be prepared and administered better in the form of oat-meal or barley jelly, using the oat-meal during the cooler months and the barley in the hot summer months. The jelly should be made at the same time that day's food supply is prepared and kept in a cool place in the same way till needed, when the number of teaspoonfuls in-

dicated in the formula are added to the nursing bottle, shaking it thoroughly to mix the food. Of course the food should never be given cold, but should be brought to a temperature between 98 degrees and 100 degrees Fahr., and when the jelly is being used it should not be added to the milk until it is thus warmed.

Digestive Disturbances. The digestive apparatus of an infant is a very delicate and complex part of the organism, and when called upon to digest a food not prepared for it in nature's laboratory, some disturbances of the digestive function will occasionally be manifested, and should receive immediate attention. Is the milk clean and sweet? Have the bottles, nipples, etc., been properly cleaned and cared for? Has the food been properly prepared and regularly administered at the right temperature and at proper intervals? Is it the right strength as to fat and proteids? These are the questions that must be answered when indigestion appears.

Some of the symptoms of indigestion are habitual vomiting or spitting up small quantities of food between feedings several times a day; excessive formation of gas in the stomach and bowels, leading to distention or

swelling, pain, and intestinal colic; belching of gas or of a sour watery fluid; vomiting with pain, fever, and looseness of the bowels. When an infant vomits a part of its food immediately after finishing its bottle, it probably has taken too much, or taken the food too fast from too large a hole in the nipple; or the vomiting may be due to tight clothing or handling immediately after the feeding. When there is habitual regurgitation or spitting up small quantities of food between feedings several times a day, the cause will probably be found in an excess of fat in the food, and the quantity of cream or upper milk should be reduced, as suggested above, by changing to a formula of lower percentage. Excessive formation of gas in the stomach and bowels with eructation, pain, and habitual colic, usually arises from faulty digestion of sugar and proteid, and a reduction of these elements of the food should be made. When there is vomiting with some fever, pain and looseness of the bowels, all milk food should be stopped at once and nothing but water given for twelve hours, after which a little albumin water may be given at intervals, for twelve hours longer when if there is a marked improvement, the

feeding may be resumed, beginning with a lower formula than that to which the baby had become accustomed.

Rule 9. Refusal of food, vomiting, diarrhœa with offensive stools, pain and fever, is an imperative command to discontinue all milk food for 24 hours, and to call the physician if there is not marked improvement at the expiration of that time.

Chronic Constipation is a troublesome condition that may develop, and demands attention. It may be due to too much proteid or too little fat in the food. In the early weeks of life it may be corrected by adding a teaspoonful of the milk of magnesia to each day's feeding, and later by substituting the milk of magnesia for a part or all of the lime water in making up the day's supply of food, gradually withdrawing it as improvement occurs.

Increase of Food in Quantity and Strength. No fixed, unalterable rule can be laid down for absolute guidance as to quality and quantity of food that shall be given in any specific case. The gradual increase from week to week and month to month in strength and quantity as indicated in the tables, will reach a large number of cases but not every one. If an in-

fant does not seem to be satisfied, cries, or thrusts its finger into its mouth, when the bottle is taken away; if at the same time it is digesting well, having good stools and not vomiting any, the indications are that the food should be increased. If, however, the child seems satisfied, is round, rosy, plump and lusty, and is making a normal gain in weight each week, no increase should be made in strength or quantity, no matter what formula is being used. Neither should there be any increase if the baby does not seem altogether satisfied, yet is making rapid gain in weight every week.

When passing from one formula to another, some little discomfort may be noticed for a day or two, but this will usually disappear as the baby becomes accustomed to the new combination.

An infant in good health and using a formula perfectly adapted to its needs will sometimes refuse to take the whole of the regular allowance, and it should never be coaxed or urged to take more, but the bottle should be removed at once.

Rule 10. Good digestion, greeding nursing, disturbed sleep, persistent peevishness, with

falling off of normal increase in weight, suggests increase of food.

Rule 11. Good digestion, good appetite, sound sleep, rosy color, with normal increase in weight, is a protest against any change in the food.

Rule 12. Never urge an infant to nurse when it refuses the bottle, nor coax it to take more when it takes only a part.

Weight. The baby should be weighed at least once a week, as the knowledge thus gained is of utmost importance and cannot be acquired in any other way. It gives information as to its general health, the nutritive value of the food, suggests changes that should be made or warns against making changes.

The average weight of an infant at birth is 7 pounds, and the average increase in weight of a healthy baby for the first five months is ¼ to ½ pound weekly, and from the fifth month to the twelfth month is 1-6 to 1-3 of a pound weekly. The weight at birth is doubled at five months and trebled at fifteen months. The weight at one year is doubled in seven years, and quadrupled at fourteen years.

Condensed Milk. Never feed it to a baby.

Some babies get fat on it, and some men get fat on beer.

Peptonized Milk is a makeshift of the last resort, and when its use is indicated—if it ever is—a physician should personally advise in its preparation and administration.

Pasteurized Milk is a snare and delusion. Pasteurizing milk, that is, heating it to 155 degrees or 160 degrees, Fahr., for half an hour, does not make dirty milk clean, nor stale milk fresh; nor does it destroy the toxins or spores of the disease producing germs that may be present; but it does seriously impair the food value of the milk. The heat ruptures or loosens that organic union of proteid and mineral which practically eliminates all the mineral elements from the food, as they cannot be appropriated by the cells and tissues of the body when isolated from their natural carrier, the proteids. These mineral elements of the food enter into the formation of every tissue of the body, and can reach those tissues only in organic union with proteid. Separated by heat, these elements cannot combine again; and administered as food in this disintegrated state with the hope of feeding the cells and tissues of the body is as visionary as to ex-

pect iron to be supplied to the system from the pins and tacks that babies sometimes swallow. No robust rosy baby was ever seen whose only food for a prolonged period was pasteurized milk.

Sterilized or Boiled Milk is an unfit food for an infant. The deteriorating process begun in pasteurizing is completed in sterilizing. Sterilized milk is hard to digest; it does not contain the food elements in an assimilable form necessary for the healthy growth of the infant. An infant cannot do well on a sterilized milk diet.

The results, shown in the table below, of the analyses of the milk of a number of nursing mothers whose babies were all doing well, show how varied may be the relative proportions of food elements in milk, yet if it is pure and fresh and unaltered by any interpolated processes, the baby immediately adapts itself to the food and thrives. The second table gives the results of the analyses of the milk of a number of different cows, and shows a similar variance in the relative proportions of the food elements, and lends plausibility to the recommendation previously made to select the

milk for infant feeding from that of several rather than from a single cow.

Analyses of Human Breast-Milk.

Mothers well; infants digesting well and gaining in weight.

FAT	SUGAR	PROTEID
2.92	6.55	2.12
2.96	5.78	1.91
3.80	6.15	3.53
4.00	7.00	1.50
5.01	6.98	1.29
5.16	5.68	4.14

Analyses of Cow's Milk.

Specimens of milk from six different cows.

FAT	SUGAR	PROTEID
2.88	4.33	3.99
3.66	4.92	3.76
3.89	4.41	4.01
4.00	4.50	4.00
4.04	4.55	4.15
4.50	5.00	4.00

CHAPTER V.

THE BABY.

The Bath and the Clothing.

Let the mind's sweetness have its operation upon thy body, thy clothes, and they habitation.—Herbert.

The Bath. The appalling paraphernalia, the minutiae of detail as to preparation, and the labored multiplicity of exactions as to modus operandi, which mark the instructions emanating from maternity and foundling hospitals, for giving baby a bath, strike terror to the heart of the young, inexperienced mother, as she realizes her own unfitness and perhaps lack of equipment for the task, and contemplates the "perils by land and sea" that await her infant; pneumonia from a too low temperature of room or water, drowning in the bath tub from a squirm or a slip of the hand; perhaps total dissolution from a misplaced thumb or finger of the left hand at the back of the neck—all loom up as possibilities to her confused mind after reading the usual instructions for a baby's bath.

But, the baby must have its bath, and it must often be given by inexperienced hands, but there is no reason why ordinary intelligence and care may not secure to the baby all the benefits of the bath without any serious risks. It is not so fragile that it is liable to fall to pieces without warning, and anyway, it is not an amphibious animal, and should not be soaked in water two or three times a day. A full bath once a day is sufficient, and it should be given in the morning half way between meals. This full tub bath should not be given till after the cord has come off and the baby is at least a week old.

A bath-tub, holding sufficient water to cover the baby's body when placed in it, a basin of water, two or three washrags of some soft material, a piece of pure white castile soap or a cake of palm-oil soap, a couple of soft towels, and a cup of boric acid or salt solution—½ teaspoonful of either to a pint of boiled water —are the essential things needed to give a thorough bath. The temperature of the water for the first baths should be the same as that of the baby's food, 98 degrees to 100 degrees Fahr.

The face and head, using a little soap on the

scalp, should be first washed and dried, after which another wash-rag should be well soaped and with it the whole body should be gone over thoroughly, particular attention being paid to the armpits, groins, folds of the skin, between toes and fingers, the region between the folds of the buttocks and the genitals; this done, the body is gently placed in the tub, and while one hand supports the head and back with the other the body is well washed and rubbed and all soap removed, after which the baby is taken from the tub and with a soft towel mopped, rather than rubbed dry. The baby may now be rubbed briskly all over with the palms of the hands, a good dusting powder used in the folds of the skin or wherever there may be chaffing, and then dressed. After dressing the bath is completed by washing out the mouth with a soft piece of cloth wrapped around the end of the little finger and dipped in the boric acid or salt solution, by using the same solution on a little absorbent cotton or soft cloth to clean the corners of the eyes, and finally by cleaning the nostrils and folds of the ears by means of a bit of absorbent cotton twisted on the end of a wooden toothpick.

To give the bath before an open fire, as usually advised, is to expose the baby to the coldest and strongest drafts in the room. The air in the lower strata of a room is always the coldest, and when a fire is started this air begins to move towards the fire, and a draft from all sides of the room sweeps in toward the fire. If a room is too cold to permit giving a bath away from the fire, it is not warm enough to give a bath in front of the fire, and the bath should be deferred until the room is made sufficiently warm.

A temperature of 68 degrees to 70 degrees Fahr., is quite high enough for a living room, but it is a temperature much too low in which a young infant is to receive its bath. If the room cannot be sufficiently warmed throughout, a temporary screen may be erected about the fire by means of blankets hung on the backs of chairs which will exclude all drafts and make a comfortable and comparatively safe place in which to give a bath.

Pouring a solution of boric acid into a baby's eyes every time it is bathed is a refinement of attention that can well be dispensed with. If the eyes need this douche, so do the ears. Nothing should be used in the eyes

unless they are sore. If there is slight inflamation with some discharge, they should be bathed and washed out with boric acid or salt solution several times a day, the solution being warmed to about 100 degrees Fahr.

After the fifth or sixth month the scalp should not be soaped oftener than twice a week, and at this age the temperature of the bath should not be over 90 degrees to 95 degrees Fahr. for winter, and should be about ten degrees less for summer.

The Clothing. When man first crawled out from the jungles of savagery, he began to make himself clothes and to build himself houses; and he has kept on ever since making clothes and building houses, always making his clothes a little warmer and then his houses a little tighter and a little hotter, until today his natural vigor of resistance to external influences is impaired by over-warm clothing and overheated and under-ventilated houses. The old saying that "sealskin sacks kill more people than does smallpox" is truer today than when said. Over-warm, heavy clothing is no insignificant factor in the cause of infant illness during the hot summer months. An infant should not be swathed like a mum-

my in clothing; while it requires being kept warm, it should not be overweighted and overheated with clothing.

Excessive covering makes the peripheral nerves too sensitive to caloric changes, and the capillary blood system too feeble to cope successfully with thermic, toxic, and traumatic impressions.

The first clothes of an infant should consist first of that piece of cloth worn next to the skin, the binder or abdominal band, made of fine soft flannel and wide enough to extend from the hips to the lower ribs, and when put on should be loose enough to allow the hand to slip snugly under it. It should be worn during the first month and may then be replaced by a knitted garment, a sort of combination of band and shirt, extending from the hips to the arms, with shoulder straps to hold it in place. This may be knitted from cotton and silk, or be made from soft thin material of silk and wool or cotton and wool, and should be worn till the child is three or four years old.

The shirt, the next garment, should have a high neck and long sleeves and extend below the hips: it may be knitted as the last men-

tioned garment, or made of mixed material of cotton and wool or silk and wool. The petticoat should be made of white flannel and the dress, the last article of clothing, should be made of cambric or nainsook. The last two garments should be about a yard in length and should button in the back with flat buttons, as should also the shirt. The shirt may be fastened at the back with narrow tape and the petticoat and dress with narrow ribbons.

The diapers or napkins should be of cotton, not of canton flannel, and should not be covered with waterproof material, but as soon as wet or soiled, should be immediately removed and the parts thoroughly cleansed. While in long dresses the infant needs no other covering for the feet and legs.

The clothing of an infant should be warm, light, and loose; not too loose and flowing, or they will not be warm, but that moderately snug-fitting which will allow the free movement of every limb and muscle. That next to the skin should be of a light soft woolen material that may be worn summer and winter; indeed, during the mid-summer months, but little or nothing else is needed in the matter of clothing, than the broad band previously

mentioned, and a napkin, to conserve the comfort and health of the baby in the hot hours of the day.

When increased warmth is needed, heavy weight material should not be used, as two garments of light weight material will be much warmer than one of the same weight made of thick, heavy material.

Other garments that will be needed for the baby are flannel or knitted sacks, flannel blankets, an eiderdown comfortable, a knitted hood, shoes, stockings, etc.

Shoes and stockings should be made to fit the foot. Examine it and note the shape. The deformity of the foot that ends in corns, bunions, ingrowing toe-nails, and a narrow-toed shoe, often has its beginning in the gentle pressure of the soft innocent-looking stocking. However, if this contortion and permanent deformity of the foot is inevitable, some kindly consideration for the victim should lead us to begin it as early as possible in infancy.

Rule 13. In the conservation of the baby's health, the bath and the clothing are of equal importance with the feeding, and should receive the same careful attention.

CHAPTER VI.

THE BABY.

Sleep, Air, Light, and Exercise.

He that follows nature is never out of his way. Nature is sometimes subdued, but never extinguished. —Bacon.

Sleep. Birth is the sudden awakening from the profound sleep of one eternity into the narrow intervening space of time; and as if reluctant to take up the new life, the new-born infant, for the first few days of its existence, sinks back again and again into profound sleep after each brief waking interval; nor in all after life is that mysterious bond which links us to the unknown wholly broken.

For the first few days a healthy infant sleeps nearly all the time. As it grows older there are longer waking intervals, until at six months it should sleep about two-thirds of the time. After six months a baby should sleep all night with a nap in the morning and afternoon. Until six months it may be fed at

ten or eleven o'clock at night and should then sleep till six or seven in the morning.

Day or night, sleep should not be allowed to interfere with regular feeding.

When possible, the baby should sleep alone, and on a horsehair mattress and a thin horsehair pillow. It should be neither nursed, carried nor rocked to sleep; none of these things contribute anything to its comfort, but unnecessarily consumes the time and strength of the mother or nurse. Having been fed, or its needs attended to, and the room made quiet, it should be laid in the crib and allowed to go to sleep of its own accord. It should not be covered over head and ears when asleep. "Nightcaps are dirttraps," and tend to cause scalp eruptions by stimulating excessive sweating. The more lightly a baby's head is covered, and the sooner all caps are dispensed with, the stronger will be its hair and the less liable will it be to "catch cold." Of course the bed should be aired every day, and the room aired two or three times a day winter and summer.

If the baby will not sleep, something is wrong, and dosing it with syrups will not make it right. It is easier to put it to sleep

with a dose of some patent nostrum than to diligently search out the cause of the trouble, and hence, even the helpless babe, is so often made to pay tribute to the patent medicine business. Search out the cause; examine its clothing and body, look after the food supply, its quantity, preparation and administration, if bottle-fed, or its quality, quantity, and regularity of nursing, if breast-fed. It may be getting too much or too little food. Perhaps there is too much or too little clothing; perhaps faulty habits have been formed. When relief does not follow the correction of any defects that may have been found, then seek the advice of a physician.

Air and Light are necessary to the existence of practically everything, and are as essential to the life and health of the infant as food and sleep; yet though plentiful they are often doled out grudgingly to the infant.

The room in which an infant passes most of its time should be well lighted, and should be thoroughly aired two or three times a day, winter and summer, the infant being taken to another room while this is being done. If in very cold weather the room is too cold after being aired, it can be brought to a proper

temperature before returning the infant. The temperature of the room during the day should be that of the ordinary living room, 68 degrees Fahr., and for the first two or three months it should not be allowed to fall below 65 degrees at night. After two months the temperature at night may be allowed to go as low as 55 degrees Fahr., and after the first year, as low as 45 degrees or 40 degrees. This night temperature must be maintained with the windows open, as fresh air is as necessary at night as during the day. An infant should be gradually accustomed to breathing cold air. This may be done by short airings of ten or fifteen minutes indoors with windows open sufficiently to lower the temperature one or two degrees, extending the time each day until finally three or four hours are spent this way evey day, and during the same time allowing it to sleep in a room at night with a temperature gradually lowered, as it grows older, to several degrees below the usual temperature of the living room. The baby may be given these airings in its crib or carriage with a little extra clothing and at first a light covering for the head, which, however, should finally be discarded. All this, while giving the

baby needed fresh air, is preparatory to taking the baby out during cold weather. This airing and preparatory process should be begun when the baby is three or four weeks old, and in six weeks or two months it may be taken outdoors on mild days in the winter. On pleasant summer days its airings may begin when three or four days old, and it may be taken out when a week old.

To secure good ventilation and at the same time avoid drafts, from which a baby should always be protected, the upper sash of the window should be lowered and the lower one raised about a foot, and frames made to fit these openings and covered with fine screen wire or cheese cloth, should be inserted.

Some common sense judgment must be exercised in the matter of airing the baby and taking it out of doors, in both winter and summer. A damp, foggy day, or a stormy day, or an extremely cold day is not a fit day to take an infant out; nor should it be taken out in the midday heat of summer. Nor should a baby be aired or allowed to sleep in a room too cold. But much of the day in the summer time can be passed in the open air and the light—the porch or a shade tree

offering protection from the direct rays of the midday sun—and many favorable days can be found in the coldest winter for an outing of longer or shorter duration. It must be remembered, however, that a baby cannot be taken out safely in cold weather, if while in the house it is confined to an overheated living room and sleeps in a warm room at night, and has no daily periods of exposure to cold air. It must, as it were, be kept in "training" for the outings by short daily recreative periods on the porch, or in a room with the windows open, and by sleeping in a cool room at night.

The fresh, pure air of winter is cold air, and as the infant needs an abundance of fresh, pure air, it should become accustomed to take it cold as soon as possible, and there is no place so good to take it as out of doors. There air and light combine their beneficial influences. Cold air is especially invigorating. It has been found that tuberculous patients who spend all their time in the open air, improve more rapidly in the colder months than in the warmer months.

There is a kind of skin respiration, and that is another reason why clothing should

not be tight, and made of thick, heavy, closely woven material, such clothing interfering with the interchange between the layer of air about the body and the external air. The skin like the lungs gives off to the air in contact with it carbon dioxide and other waste products, and receives in exchange oxygen which plays a primary role in all the nutritive processes of the organism. Under the influence of light this action of the skin is intensified. Light exercises a most powerful influence upon life in all its manifestations. Mtabolism, or the living process going on in all the tissues, is stimulated by it. It is a powerful germicide, and bacteria and virulent germs of disease are killed more quickly by direct sunlight than by the strongest disinfecting solutions. Contaminated streams of water are purified by the direct rays of the sun. Country children who are more exposed to the sun than city children, are healthier, and less subject to tuberculosis and other grave diseases. That dread disease, cretanism, is most frequently found in deep valleys where the rays of the sun rarely penetrate.

Yet with all nature, with experience, observation, and science calling for more air and

light, we pull down the blinds and darken like a dungeon the room where the baby is put to sleep, when we ought to lighten it; we overclothe it in winter, and are taught to keep every part of its body covered in the summer, when as much as possible of its naked body should be exposed every warm day in summer to the beneficent influence of air and light.

The most aggressive and vigorous nations of the past, recognized the value of air and light as ministers of health, and on the roof of nearly every dwelling in Rome there was a place called a solarium, where the inhabitants daily bathed their nude bodies in the air and sunlight.

Rule 14. Adapt the clothing of the infant to the changes in temperature, but remember that too much "bundling up" makes it delicate and too sensitive to changes of temperature and external influences.

Rule 15. That an infant may without danger, have the benefits of some outdoor life in winter, it should be kept accustomed to the moderately low outdoor temperature of winter by daily airings at a low temperature, and by sleeping in a cool room.

Exercise. The youngest infant requires sunlight, open air, and exercise. Exercise in the open air and sunlight hardens the skin, develops the muscles, and teaches confidence and self-control. A good lusty cry is good exercise for an infant. It expands and strengthens the lungs, and develops the muscles of the chest and throat. Do not discourage good healthy crying. Beating the vacant air with legs and arms is the first instinctive exercise of the infant, and these movements should not be interfered with by clothing or covering. Two or three times a day most of the clothing should be removed and the baby allowed to lie upon the bed or upon a blanket on the floor, in a warm room where it can have full freedom for every movement. As it grows older and begins to crawl, it should be encouraged to do so, either on the floor, or on warm summer days, in the garden on smooth pathways, protected from the wind and open to the sunlight.

CHAPTER VII.

THE BABY.

Food and Other Formulas.

Regimen is better than Physic.—Voltaire.

The following formulas should be familiar to every one who assumes the care of infants and young children. Occasions will arise when one or more of them can be used with great benefit, and to prepare them properly is of prime importance.

Barley Water. One level teaspoonful of Robinson's prepared barley, or any good barley flour, is carefully mixed with a little cold water into a thin, smooth paste, to which is then added a pint of boiling water containing a pinch of salt; this is boiled for thirty minutes in a double boiler, after which it is removed from the fire and strained, and enough boiled water added to make a full pint.

Barley water may at times be used as a temporary substitute for milk when there is diarrhoea and vomiting.

Oatmeal, Wheat, or Rice Water. Either of these is made in the same way as barley water, using either oat, wheat or rice flour. Oatmeal water may be used instead of plain water for diluting milk when there is a tendency towards constipation and the infant is old enough—seven months—to take a vegetable proteid.

Any of these waters may be made from the whole grain by taking a heaping tablespoonful of the grain after it has been soaked four or five hours, adding a pint of water and a pinch of salt and then boiling it slowly for four hours, replenishing the water as it boils away so that a pint will remain after the boiling is completed.

Barley and Oatmeal Jelly are made in the same way as the waters, except that three times as much grain or flour is used to the pint of water. The jellies of other grains are made in the same way.

After the sixth month, oatmeal jelly should be added to the baby's bottle in autumn and winter, and barley jelly in summer.

Beef Juice. Take one pound of round steak, cut an inch thick; broil slightly on both sides, then express all the juice by placing it in a

meat-press or lemon-squeezer, and season with salt. This may be given either cold or warm. It must not be made hot or the albumin which is in solution will coagulate and make an ugly mess.

Beef juice by the cold process is obtained by taking a pound of round steak finely chopped, and placing it in a jar and adding six ounces of water and a pinch of salt; the jar is then covered and allowed to stand five or six hours in a cold place, after which the juice is squeezed out by placing the contents of the jar in a piece of coarse muslin or cheese cloth and then forcibly twisting it. By the latter process more juice of a more nutritious character can be obtained, although it is not so palatable. By either process a better food is obtained than that found in the extracts sold in the stores.

Beef Tea. Cut one pound of round steak into small squares; cover with a pint of cold water, set on the stove and let it simmer for four or five hours; strain, add a pinch of salt, and let stand till cool, and then skim off all the fat on the surface. This may be given warm or cold in a semi-fluid or jelly state.

Chicken Broth or Mutton Broth is prepared

in the same way as beef tea. A tablespoonful of barley may be added to the mutton broth, or the same amount of rice to the chicken broth.

When for any reason milk is no digestible or must be discontinued, or when the farinaceous foods, oatmeal, barley, or rice foods cannot be used on account of intestinal troubles or other cause, then we must fall back on these meat preparations as a temporary substitute for the regular diet. At weaning time they may become a normal part of the baby's diet.

Scraped Beef, or Beef Pulp is obtained by scraping with a tablespoon a piece of round or sirloin steak. Two or three teaspoonfuls of the pulp thus obtained may be given to a child of sixteen or eighteen months.

Albumin Water. Add to a half pint of cold water the white of one fresh egg, a pinch of salt, and a teaspoonful of brandy. Shake the mixture thoroughly. This is a useful substitute for milk when there is a very irritable stomach and vomiting.

Baked Apples. Pare and core the apples; bake till quite soft, and strain.

Coddled Egg. Place the egg, shell on, in a

pan of boiling water; remove the pan from the stove and allow the egg to remain in the water for eight minutes. For a very delicate stomach the white only should be used, seasoned with a little salt. A child of twelve or fourteen months may take the whole egg.

..**Junket.** Put a pint of fresh milk into a saucepan and heat it lukewarm; then add two teaspoonfuls of Fairchild's Essence of Pepsin and stir just enough to mix; divide quickly into small cups and let stand till firmly jellied, when it is ready for use, just as it is, or with a little sugar; or it may be placed on ice and taken cold.

Whey. If instead of dividing into small cups the junket is left in the saucepan till firmly jellied, and then broken up with a fork, and strained, whey—the liquid part—is obtained ready for use. Keep in a glass jar near ice.

Lime Water. Place a piece of unslacked lime as large as a base ball in a crock or jar holding two quarts, and pour over it a pint of water and wait till the lime slakes. When slaked add another pint of water, stirring; allow this to settle and then pour the water all off and fill the crock with fresh water;

when this settles the water may be siphoned, or carefully poured into bottles, which are corked and set away for use. The crock may be refilled with water, stirred up, covered, and set away for future use. This may be repeated as long as there is lime in the crock.

Some Things Worth Knowing. When local applications are to be made from the following may be selected a suitable application for almost every requirement, and all the good can be had from them that can be obtained from the widely advertised mud poultices.

Hot Compresses or Fomentations are made by wringing a piece of flannel out of boiling or hot water. It is used for relieving pain, in cramps, colic, etc. When wrung out of boiling water, the flannel should be placed in a towel, the two ends of the towel being kept out of the water, and wrung dry by twisting the ends of the towel. The compress should be applied as hot as can be born, and covered with oil silk or oil paper, and over this a dry towel. Renew when cool.

A Poultice is intended to supply heat and moisture for a longer period than a compress.

A Flaxseed Meal Poultice is made by stirring enough flaxseed meal into a sufficient

quantity of hot water to make a moderately thick mushy mass; this is spread one-fourth inch thick while hot on a piece of old linen or muslin cloth and applied directly to the skin, or the skin covered with a piece of thin cheese cloth. It should be larger than the affected part, and when applied, should be covered like the compress and left on an hour.

A Turpentine Stupe is made by wringing a piece of flannel out of hot water and sprinkling over it a little turpentine, half a teaspoonful to the square foot. It is applied hot and covered in the same way as the compress. It is useful in cases of pain in the abdomen with distention by gas.

A Spice Plaster is made by taking equal parts of ground ginger, cloves, cinnamon, and allspice; mix thoroughly and put into a flannel bag which should then be quilted to secure an even distribution of the contents. When used it should be wet with hot alcohol or whiskey. The plaster is made stronger by adding a very little cayenne pepper. It is useful in the severe colics of infants, and in bowel disorders.

Nutmeg Poultices is sometimes used in bronchitis. A cloth is spread with lard or

vaseline and grated nutmeg thickly sprinkled over it. It is applied directly to the chest and throat, and may be worn two or three days.

Mustard Plaster for an infant should be made with one part of mustard and three parts of flaxseed meal or flour, thoroughly mixed with sufficient water to make a thin paste; this is spread thinly on a cloth and applied directly to the skin long enough to redden it.

Ginger Poultices is made in the same way as the mustard plaster, and it will not blister.

Turpentine Liniment. One ounce of turpentine, one ounce of olive oil, and ten drops of the oil of mustard shaken together, is perhaps a better application for the chest in bronchial troubles of young children, than any poultices or plaster. The chest should be covered with a couple of folds of thin flannel after the application.

Mustard Water. For a mustard foot bath, add two teaspoonfuls of mustard to each gallon of warm water.

Boric Acid Lotion: To make this useful solution, add one half to one even teaspoonful of boric acid to one pint of boiled water. This may be used in inflamed conditions of the eye, as a mouth wash, and wherever a mild antiseptic soothing lotion is required.

CHAPTER VIII.

THE BABY.

Disorders, Diseases and Accidents.

Sickness is the vengeance of Nature for the violation of her laws.—C. Simmons.

Over 25 per cent. of all infants die before they are a year old; and of these 41 per cent. die of diseases of the alimentary tract, due to digestive troubles, and 21 per cent. from diseases of the respiratory tract, the lungs and other organs of respiration. It is safe to presume that the origin of one half the diseases of the respiratory tract causing death, may be traced to the digestive tract, and that the cause of the greater part of the other half may be found in defective ventilation, improper clothing, lack of airing and exercise in the open, or other unhygienic conditions or surroundings. It is also safe to presume that the majority of those diseases of the digestive tract which carry off so many infants, are preventable diseases, diseases that are caused by

improper food and improper feeding and unfavorable hygienic conditions.

We have then over 50 per cent. of preventable deaths in infants in the first year, not taking into account those caused by neighbors in certain localities, and of which we have no statistics, but the number of which observation would lead us to infer is not altogether insignificant. With knowledge that may be acquired by any intelligent person, and with reasonable care, the excessive mortality in infancy may be greatly reduced. One obstacle to this reduction, however, is the presence in almost every community of those who, without knowledge themselves, and hopelessly debarred from it through incapacity, egotism, or perverseness, dominate weak, receptive minds by their supreme self-sufficiency grounded in ignorant superstitions and traditions. These are the self-constituted medical advisers of the community, and their aggressiveness is in direct proportion to their ignorance. If a baby cries when it is taken up, it is "liver growed," and needs to be inverted and shaken by the heels. If it picks at its nose or starts in its sleep, it has "worms," and is forthwidth dosed with some patent vermifuge

or homemade decoction. If it is starving for want of proper food, it has "decay of the flesh," and there is nothing to do but to take it to some hocus-pocus doctor.

These are the advisers that squeeze the milk out of the breasts of the new-born infant until they start up a mastitis; that substitute a dirty salve or plaster for the antiseptic dressings of the physician; that put a poultice on the infant's chest when the attending physician has forbidden it; that close the doors and windows and exclude every breath of air when the physician has left specific instructions for thorough ventilation; that change the food, and change the medicine, and even change the physician by instilling dissatisfaction and destroying confidence; that hinder the progress of hygienic knowledge, and work irreparable mischief in every community where tolerance still hushes the cry of protesting innocents.

It is the duty of every one assuming the responsibility of caring for an infant, well or ill, to supplement any defects in her own knowledge by seeking the advice of a physician, and, turning a deaf ear to any gratuitous advice from incompetent persons, to unswervingly carry out his instructions.

That unnatural conditions may be recognized it is necessary to know what the natural conditions are; and the following statements of the average normal conditions are given as data to guide in recognizing the abnormal. In some individual cases there may be marked deviation from these arbitrary standards without indicating anything abnormal or unnatural.

The average weight of a new-born babe is a little over seven pounds. For the first few days an infant should sleep nearly all the time. The temperature during the first week is 98.2° F., from which it will never vary over one degree while the baby is in health. The pulse will vary from 115 to 130 in the first year. During the first week the infant should have two or three stools a day; they should be soft, yellow and smooth, without lumps; one to two a day after the first week. It should hold up its head at the second or third month. It should sit alone at the seventh to the ninth month. It should creep at the tenth month. It should walk at the fifteenth month. It should talk at the twelfth to the eighteenth month. The fontanel should be closed by the twentieth month. Infancy ends at the close of the second year; childhood begins then and ends at puberty.

Teething. The following is the formula for the usual appearance of the teeth.

Groups	Time of Appearance.
2 Central Lower Incissors.....	6th to 8th month
4 Upper Incissors	8th to 10th month
2 Latteral Lower Incissors and 4 First Molars	12th to 14th month
4 Canines, 2 Upper "Eye," 2 Lower, "Stomach" Teeth....	18th to 20th month
4 Second Molars	28th to 32nd month

The usual symptoms of teething are fretfulness and disturbed sleep for two or three days; slight fever, disturbed digestion, perhaps some vomiting and diarrhoea with undigested food in the stools, and considerable salivation and slobbering. A mild laxative when there is vomiting and diarrhoca, and diminishing the quantity of food, is usually all that need be done.

Colic. This is commonly caused by indigestion. The baby kicks, draws up it legs, twists its body, distorts its face and protests with a yell-like cry. The feet and hands are cold and the abdomen is hard. Give plenty of warm water as hot as it can be taken; apply a hot spice plaster or turpentine stupe to the abdomen and warm the hands and feet.

Croup. An attack of spasmodic croup usually comes on at night with a dry, ringing, bark-

ing cough, hard breathing, and fever. There may have been no indications of illness the day before, except perhaps a little hoarseness toward evening. It is usually caused by indigestable food, or exposure to wet and cold, and it commonly attacks children of six months to three years of age. As it cannot always be readily distinguished from diphtheritic croup, which is usually, but not always preceded by two or three days of slight illness and a sore throat, it is not wise to take so grave a risk of mistaking a disease so dangerous as laryngeal diphtheria for simple croup, and a doctor should be called, unless you are absolutely sure that there is nothing more serious than spasmodic croup. While waiting for the doctor, give a mild laxative, and apply a hot compress about the throat and on the upper part of the chest; put the legs up to the knees into hot mustard water; if the breathing becomes difficult, induce vomiting by tickling the back part of the throat with the finger or a feather, or with a teaspoonful of powdered alum and sugar, equal parts. Inhaling steam from a teakettle or other source of supply, will be helpful.

Convulsions or Spasms. A convulsion or spasm is not a disease. Convulsions occur as

a symptom, as the result of many different diseases in infancy. They often mark the onset of the more serious infectious diseases. More frequently, however, they are caused by an overloaded stomach, or indigestion, or the irritation produced by teething. The prominent symptoms are a slight twitching of the hands, feet, face or eyelids; or the infant may become suddenly rigid, the eyes turn upward and become fixed and the fingers clinched, followed in two or three seconds by convulsive movements of the eyes, arms, and legs. After a few moments to a half hour, these symptoms are followed by complete relaxation and the infant sleeps, perhaps to waken bright and apparently well, or to go immediately into another convulsion. The first thing to do is to send for a physician and then to put the feet and legs into hot mustard water and apply cold to the head.

Earache. Wash the ear out with water as hot as can be born and then saturate a part of a small tuft of cotton with alcohol or whiskey and insert it gently into the ear, leaving the dry portion outside; over the ear and side of the head apply a hot compress, or allow the head to lie upon it or a hot-water bottle.

"Coryza," or a "Cold in the Head," is a very common affection and very commonly neglected. It is easily recognized; eyes red and watery, discharge from the nose, "stuffed up" condition of the head, slight fever, sore throat and often a cough. It is but a step from "a cold in the head" to a "cold on the chest," and from a "cold on the chest" to a "cold on the lungs"—pneumonia. Or it may go the other way, causing earache or permanent injury to the hearing, or other serious trouble in the head. Try to break it up at once by keeping the child in a moderately warm, well ventilated room, giving hot foot baths twice a day, atomizing the nose with a solution of boric acid or salt, one teaspoonful to the pint, and administering a mild laxative.

Inflamed or Sore Eyes. Bathe with warm water three times a day and instill a few drops of mild salt or boric acid solution into the eye after each bath. If pus is present, use a boric acid solution three or four times as strong and call a physician.

Diarrhoea, of whatever character is a warning to stop all milk food for twelve to twenty-four hours, giving nothing instead but plain pure water. Give a mild laxative and keep the baby quiet. If milk must be discontinued after

twenty-four hours, albumin water or beef tea may be given. When the milk of a bottle-fed baby is resumed, the first feedings should be half the strength of its regular food, or that which it was taking before becoming ill. If there is no improvement under this treatment, at the end of twenty-four hours, call a physician.

Mumps appear as a swelling on the jaw below the lobe of the ear, and as it enlarges it extends back behind the ear and forward along the edge of the jaw. It is not common in young infants; is contagious; and a child having the mumps should be separated from other children. Nothing will cure or cut short the disease; a mild laxative, hot applications, and protection from exposure, is all that can be done.

Whooping-cough, during the first week or two, seems much like an ordinary cold, but the paroxysms of coughing gradually become severe, beginning with a succession of short expiratory coughs, during which the face becomes red, the eyes congested, and ending in a long gasp for air. It is during this long inspiration or gasp that the peculiar sound called the "whoop" is heard.

An infant with the whooping-cough should have an abundant of fresh air, living out of

doors when possible. It should be taken up when a paroxysm of coughing comes on. Feeding demands special care, as much of the food is thrown up during the paroxysms. Food should be given immediately after the paroxysms, in order to give as much time as possible for digestion. The child should be protected from cold drafts or any unfavorable hygienic conditions. Owing to the highly contagious character of the disease, and to the serious nature of the complications that are prone to develop, it should be completely and rigidly separated from every one except those who care for it.

Chicken-pox is a mild contagious disease that is distinguished by the appearance of small papules or pimples, usually first on the body and later on the arms and legs. The papules may appear on the forehead and face. The papules turn into vessicles or little blisters in a few hours, and these shrink up in two or three days, leaving a crust which drops off, the eruption disappearing within a week or ten days. The eruption is usually scattered at considerable intervals over the body and extremities. No special treatment is needed. One attack does not exempt from another.

Measles, like the poor, we have with us always, and familiarity has tended to breed contempt. The disease is often spoken of as a sort of joke, though those older persons recovering from a recent attack have never exhibited any extraordinary enthusiasm for the fun derived from their experience.

The disease has a predilection for late infancy and childhood and one attack does not exempt from another.

The rash which appears first on the face, as small red spots, soon spreading over the body, is preceeded by three or four days of fever, sneezing, coughing, running at the nose, and redness of the eyes. When the eruption is fully developed, the face has a swollen puffed up appearance. The disease is very readily communicated to others, and very serious or fatal complications are liable to develop if the patient is not properly nursed. The patient should therefore be put to bed and no one but the attendant allowed in the room. A mild laxative should be given and plenty of fresh cold water, and a warm bath every day.

Scarlet Fever. Of all the diseases characterized by a rash or skin eruption, excepting small pox, scarlet fever is the most dangerous. It begins suddenly with a high fever,

sometimes vomiting in young children, sore throat, white furred tongue, scattered over with small red spots, and in twenty-four hours a fine red rash appears on the front of the neck and upper part of the chest, spreading rapidly over the body, extremities and face. A mild case, "scarlatina," or "scarlet rash," as it is so often called, may be a very trivial affection, the child showing no symptoms of discomfort; but it may give the disease to another to develop into the most malignant form. Scarlet fever may occur more than once in the same child. ~~The most contagious period be same child.~~ The most contagious period begins at about the end of the first week, when disquamation, or scaling off of the skin begins which may last for two weeks or longer. As soon as the disease is recognized, or its presence suspected, whether it be mild or malignant, the patient should be separated from other members of the household, and a physician called. Clothing from the patient and the bed should be boiled, as the contagion or poison may cling to the clothing for months, or even years, and then infect other persons with the disease.

Diphtheria commonly begins with a feeling of chilliness, slight fever, more or less pain in the back and limbs, redness of the throat and

some discomfort or pain in swallowing. From twelve to twenty-four hours after these symptoms, an examination of the throat will probably reveal a white patch of membrane on one or both tonsils. At this time it may be noted that the glands of the neck are swollen. There may be, however, no membrane in the throat, but instead there may be a bad smelling reddish discharge from the nose, indicating that the membrane has formed in the back part of the nose. Or there may be neither membrane in the throat nor any unusual discharge from the nose but instead a hoarseness and croupy cough that has probably been growing worse in the last twenty-four hours, and this would indicate that the diphtheria has begun in the larynx and that we have laryngeal diphtheria, or membranous croup, as it is sometimes called.

Diphtheria is a highly contagious disease, and therefore any suspicion of its presence should lead to the immediate isolation of the patient. Any of the symptoms mentioned above is a warning to separate the child from other members of the family, and to summon a physician. Antitoxin is the only remedy for this disease. Used in the early stages of the disease it is probably a sure cure, and since the discovery and wise use of this remedy, much of

the terror formerly associated with this disease has been lost.

There is a somewhat prevalent belief that the whole category of children's diseases, like teething, is the common heritage of every child; and as the anticipation of an impending evil is more distressing than its actual experience, there comes the desire to have done with the inevitable as soon as possible, and mothers have cruelly exposed their children to the contagious diseases of childhood, or at least have not taken any special precaution to protect them from such diseases.

It is not necessary that a child should have any of the diseases common to childhood, and every precaution should be taken to prevent exposure to any contagious disease. Let this be understood and acted upon. Let the Golden Rule be the guiding principle of life here as elsewhere, and much serious sickness will be averted, many lives saved, and the spread of contagions largely arrested.

Cuts and Bruises. There still live here and there in certain civilized communities, some few persons who would recommend a wad of tobacco or of cobwebs for a fresh wound. Why mud was never selected as a dressing by these self-constituted "First Aids" to the injured,

since dirt has no terrors for them, is one of the inexplicable anomalies of human nature.

The best treatment for a wound, in the absence of a surgeon, is to wash it thoroughly with boiled water, or if boiled water cannot be had, any clean water, and then wring a piece of gauze or clean white muslin out of boiling water and apply to wound, and over this a bandage. If serious, call a surgeon.

Poisoned Wounds should be encouraged to bleed by squeezing or rubbing, and washed out with a solution of carbolic acid, three teaspoonfuls to a pint of water, or with soap and water, followed with an application of hartshorn. When on a leg or arm, and of a serious character, put a rope or strap around the limb above the wound and draw it tight and send for a doctor, and while he is coming dress as above.

Burns and Scalds are best treated by applying on gauze or clean pieces of old sheets equal parts of lime water and linseed or sweet oil, and covering with cotton. If serious, call a physician.

Infant Medicine. The giving of much medicine to infants and children, is always more or less harmful. Especially injurious is the very common practice of continually giving irri-

tating cathartics, or medicine to act on the bowels. The natural sensitiveness of the bowels is thereby dulled and chronic constipation is sure to follow. Doses of some patent compound or of castor oil are too often resorted to. The former should never be given, and castor oil is so repulsive and nauseating and has so little to recommend it, that it can be safely abandoned. However, in the beginning of stomach and bowel disorders, and of the diseases already mentioned, some mild laxative should be given, and nothing is better for children than one tenth grain doses of calomel at short intervals. If a physician should need to be called, the symptoms are not then obscured by the irritation produced by some drastic cathartic, or the nausea caused by a dose of castor oil. A physician or druggist can supply small sweetened tablets containing one tenth grain of calomel, which may be given hourly till effect, or until as many doses are given as the infant is months old, up to ten months, after which age ten doses will usually be sufficient up to ten years or more.

Rule 16. The frequent and indiscriminate giving of drugs to infants and young children is not only useless but always harmful and may

be dangerous, and therefore only on the advice and direction of a physician should drugs be given to infants and young children.

Dr. Rotch, one of the best authorities on this subject, writing for the instruction of physicians makes the following statement: "An important fact to remember in the treatment of infants and young children is that drugs play a very insignificant part in the actual cure of diseases."

Rule 17. A mother should first learn, not how to give drugs to her child, but how to avoid giving them; not how to treat children's diseases, but how to prevent them.

At no other period in life is the prevention of disease so important and its success so assured, as in infancy and early childhood. Careful attention to feeding and due regard for the laws of hygiene will prevent many of the diseases of childhood and greatly reduce the mortality rate.

CHAPTER IX.

THE BABY.

Its Education.

The clew of our destiny, wander where he will, lies at the foot of the cradle.—Richter.

The education of the child begins in the cradle. Everyone who has thoughtfully watched "the wide-eyed gaze of the infant at surrounding objects, the fingerings and suckings of everything it can lay hold of, the open-mouth listenings to every sound, knows that these are the first steps in the series which ends in the discovery of unseen planets; the invention of calculating engines, the production of great paintings, or the composition of symphonies and operas."

What potentialities, what physical and mental vigor, what moral disposition or tendencies lie wrapped up in the new-born infant are predetermined in a measure, but only in a measure, by the operation of a fixed law in which the parents, constituting the last modifying factor, thus far determine the ultimate

issue. But whatever of hereditary good or bad comes to the infant, its early environment is the final factor in the determination of its destiny. And within this environment, rising above every other educational agency, are the influences, active and passive, good or bad, of the mother. No nurse-maid, no Kindergarten school, no institutional home, can ever furnish an adequate substitute for the mother of even ordinary qualifications for the task of rearing a child.

It is to be deplored that the curriculum of even those schools for the exclusive education of young women offer no training for the all-important duty of raising children, a duty which nine-tenths of them will, sooners or later, be called upon to discharge. "Is it not astonishing," says Spencer, "that though on the treatment of offspring depend their lives and deaths, and their moral welfare or ruin; yet not one word of instruction on the treatment of the offspring is ever given to those who hereafter will be parents."

While the ideal preparation for the grave responsibility of bringing up children would call for a thorough knowledge of the laws of life, embracing the laws of hygiene, physiology, and

psychology, yet a knowledge of some general principles, or a recognition of the laws that govern the development of the child in mind and body, would yield results that would make odious the thoughtless, haphazard-way in common use of rearing children.

It may be set down as a general principle that a sound body is essential to a sound mind and sound morals. The nutrition of the infant becomes then the first and paramount problem for the mother. Food, sleep, ventilation, clothing, airing, exercise, are all important factors in the healthy development of the child. By due attention to these, any hereditary physical defects, or untoward predispositions are overcome, and the normal elements of the organism are strengthened and developed into their best. Or, if the food is insufficient in quantity or defective in quality; if the clothing is not adapted to the changing seasons and conditions, if ventilation, airing, erercise, etc., are neglected, or receive careless attention, then will growth be retarded, vitality lowered and hereditary predisposition encouraged to develop into actual disease.

Much of the child's first knowledge is self-acquired; in fact the most valuable part of its education will be that which was self-ac-

quired. And here the one important duty of the mother and teacher is not to help, but not to hinder this self-educating process. Alone and unaided, the infant in the cradle acquires a knowledge of the external world about it; the forms and colors and other qualities of objects, sounds and whence they come, tastes and the objects with which they are associated; and later on, what objects burn, what objects are heavy and want to fall, what objects are sharp and inflict pain; and having learned to balance its body and control its movements, it runs, and climbs, and plays, and engages in games of skill and games of endurance, cultivating self-reliance, strengthening the will, sharpening the perception, and quickening the judgment while at the same time it is developing the muscles, expanding the lungs and invigorating the vital powers. And in the midst of all this clammering confusion of strange, new things demanding its attention, in spite of discouragement and obstacles thrown in its way, without a teacher, without a book, and without apparent effort, it has learned a new language. The child is a genius when self-taught in the school of Nature.

Those who would wisely train children must first become masters of themselves, or they

cannot apply those successful methods of discipline and development that Nature so effectively employs. They must also recognize the natural order and manner of the unfolding of the moral and mental powers, or they will obstruct and thwart the natural processes of development.

Insisting on truthfulness in a child, and yet lying every day to it in threatened punishments that are never inflicted, will not awaken any respect for the truth. Urging obedience, by putting every trivial request in the form of a command and issuing endless unreasonable commands, accompanied with penalties for disobedience so arbitrary in character and so excessive in severity that their execution seems improbable, does not arouse any cooperative fellow-feeling and secure that willing obedience which alone is worth having.

A rude slap for trivial offense; a harsh "No" to some reasonable request; an everlasting "Don't" to the healthy, natural, irresistible activities of normal child life, do not weave the silken cords of lasting love but unravel even the natural ties of friendship and fellow-feeling, and set adrift the hungry, alienated affections. Oh, how long will the ardent desire for knowledge last when the child's eager

questions are answered with, "Don't bother me, I am busy"? How long will the child rejoice in the discovery of new things, new truths, new facts, when its ingenuous appeals for sympathy and recognition of its discoveries are met with the indifferent response, "Don't trouble me with your silly things"?

Some knowledge of the laws of hygiene and of psychology is necessary in order that wise guidance may direct the physical, moral, and mental development of the child, but more important even that this knowledge is a deep, abiding, patient sympathy with every childish interest. A sympathy that rejoices with its joy, that sorrows with its sorrow, that is troubled in its trouble, that glows with interest in its eager pursuits—that is responsive to its every mood.

No made-to-order or sham sympathy can long be foisted upon a child. It must be the real thing. The mask of insincerity cannot long deceive the penetrating intuitions of a child. And to arouse in a child's mind a suspicion of your sincerity is to destroy almost wholly your influence for good. Parent or teacher who is not possessed in a large measure of "the milk of human kindness" lacks

one of the essential qualifications for the training of children.

To those who would seek guidance in the moral discipline of children, Nature is an open book. Nature is always true, always in the right, though often severe. If a child sticks its finger into the flame it is burnt. It it does it again, it is burnt. The same result follows every repetition of this wrong act. There are no threats, no scoldings, no deferring of punishment; the punishment comes immediately as the natural unavoidable reaction of the child's own wrong action. Look at it however we will, Nature is always constant and consistent in her discipline. The child is Nature's child and the fire is Nature's fire. Nature makes beneficient provisions for all her creatures. It is the function of the fire to burn, and this function is invaluable to the child when rightly controlled and wisely used. But the child does not know this, and when it thrusts its fingers into the fire, the burn that invariably follows is a sort of tuition fee that it pays for the knowledge gained, and it will not be inclined to pay the fee often. If it gorges itself with green apples, it will be called on to pay the regular fee that many another child has paid for the knowledge that

green apples are not wholesome food and that it is not the function of the stomach to digest such food. There is nothing arbitrary or artificial in Nature's methods. The eating of green apples does not burn the fingers, nor does putting the fingers into fire cause belly-ache. Such reactions would be unnatural, artificial—collecting fees without giving helpful knowledge in return.

In the discipline of Nature the penalties or tribute exacted have always a logical relation to and are determined by the nature of the action calling them forth; and this is the principle that must guide the wise mother or teacher. Let the child experience the painful results of its own action, the discipline of natural consequences, the infliction of penalties by the unavoidable laws of things. Let it pay its own tuition fees.

Only by the adoption of this method may a mother maintain the proper attitude toward her child and retain its confidence and love. When she inflicts arbitrary punishment the child loses sight of any relation between the punishment and its wrong actions and at the same time sees in its mother's punishment not so much her disapproval of its wrong doing as simply an outburst of anger. Filial alienation

soon follows, and that fellow-feeling so necessary in securing the responsive cooperation of the child in his training, gives place to growing distrust and estrangement. And more than all there is lost that "moral culture by experience of normal reactions, that rational comprehension of right and wrong conduct which results from the actual experience of the good and bad consequences caused by them."

Some thought on the part of the mother will enable her to see the unreasonableness of the punishment that is so often inflicted on children for wrong actions, the natural penalties for which are sufficient and which the child may be easily led to recognize as justly merited. If a child at play carelessly runs through the mud and soils its shoes, spanking and scolding are not the natural punishment, but cleaning the shoes off by the child who soiled them is the sufficient and only reasonable punishment, and will appeal to the child as a just punishment. Or, if it takes a toy from a companion restoration is a just punishment, and if the offense is repeated, deprivation of the privilege of playing with other children will appeal to the child as nothing more than a due punishment for its mis-conduct.

There are other more serious and compli-

cated offenses that will require searching thought and careful investigation to determine what discipline each particular offense logically demands; but no time can be more profitably spent on the moral development of the child than that consumed in these painstaking efforts to determine and make plain to the child the nature of its mis-doings and to point out the justness of the penalty that must of necessity follow therefrom.

The necessity of deliberation in the administration of punishment becomes more apparent when we remember that children are often punished for conduct which should have elicited praise.

"Some village Hampten, that with dauntless breast,
The little tyrant of his fields withstood."

merits no penalty and needs no censure.

In the training of children discriminating judgment is as necessary to determine when not to interfere as it is in determining when and what active disciplinary steps must be taken. Too much government is bad government. Masterly inactivity may often be the wisest discipline.

Before you issue a positive command be sure that you have exhausted all other meas-

ures; consider all the consequences of the execution of your command; think whether it is a wise and just measure and whether you have the moral courage to carry it to its final issue; if satisfied that a command is necessary, then issue your fiat, and let it be like the "law of the Medes and Persians which altereth not;" let your decrees be as certain of execution as are the penalties of Nature and they will always be respected.

As in the mental training of a child the chief function of the mother and teacher is to make of it a self-educating being, so in the moral training the chief aim must be to produce a self-governing being. "Leave it whenever you can to the discipline of experience and you will save it from that hot-house virtue which over regulation produces in yielding natures, or that demoralizing antagonism which it produces in independent natures.'"

A man is what he is today not so much be cause of any ancestral traits he inherits, as because his childhood feet were fettered, or freely roamed with wise restraint and tactful leading. The child's whole future life, physical, mental, and moral, is predetermined, not so much as to what its ancestors were, as by what

its parents themselves, think, and feel, and say, and do.

A great part of the perversity, the vanity, the nervousness, the general unstable character of children is due to the misconduct of parents and teachers. What reprehensible pampering of vanity does the mother indulge in as she recites with foolish pride before her child, the "smart" things it says and does? How are morbid imaginings aroused, absurd obsessions encouraged, to develop later into hysterical aberrations, by the mother's reiterations in the presence of a nervous child, of the thousand and one ills from which it suffers? How often are the elements of a strong personality degraded into morbid wilfulness by the mother's complacent repetition in the child's hearing that it "will have its own way?"

Whether a child shall be refined or coarse in manners depends on which of these qualities pervades the atmosphere of the home and school. When "dolly" receives many severe threats, and harsh scoldings, and crabbed answers to imaginary questions, it means that "dolly's mama has heard those things before and that she will probably some day use the same harsh language to a real "dolly." Or,

when a little make-believe teacher in a stern, unfeeling mood rails at an imaginary or "make-believe" delinquent pupil, it means that there is a real teacher some place crushing out the gentler, finer feelings and helping to make rude boys and girls. Rude manners in play reflect and presage rude manners in real life.

Indeed all the moral attributes as well as the aesthetic feelings, are awakened and receive their bent in infancy and childhood. Love, fortitude, courage, self-control, obedience, truth and honesty, etc., are aroused and nourished, or suppressed and dwarfed, by the many influences that play upon child-life. The predominant influence in the moulding of the character of the child is that of the mother. The exemplification in the daily life of the mother of love and sympathy, of fortitude, of courage, of self-control, of patience, arouses and develops the same virtues in the child. Like begets like; harsh and unsympathetic treatment begets in the child the temperament of which such treatment is the expression. "With family governments as with political ones, a harsh despotism itself generates a great part of the crimes it has to repress; while conversely, a mild and liberal rule not only avoids

many causes of dissention, but so ameliorates the tone of feeling as to diminish the tendency to transgression." There are, however, other means of moral education than the passive influence of of example. Expressions of excessive concern for every trivial injury a child receives, weakens its fortitude, while treating such mishaps as unworthy of attention and diverting the child's thought from them, strengthens and develops this desirable trait. Withholding for a time confidence in a child who has attempted deception by a falsehood, will lead it to a better appreciation of truth and honesty. Self-control is encouraged by relaxing excessive parental control, and allowing the child to suffer fully the natural consequences of its hasty actions. Love—are not all the conditions for its germination and growth found in the little world of playthings? The dog, the horse, the doll—what a world of affection is lavished on these dumb, inanimate things! An affection that still fondly clings to a dirty, tattered rag-doll and wants it near, even when fever burns the flushed cheek and pain racks the wasting little body that tosses to and fro on the hard bed of the poor.

Play is not an unimportant factor in the education of children, their physical, mental, and

moral development. Few and simple toys should be supplied. Many playthings distract the attention, interfere with accurate perception, prevent full play of the imagination and tend to foster discontent.

Rule 18. The education of children should lead to self-government and to self-teaching.

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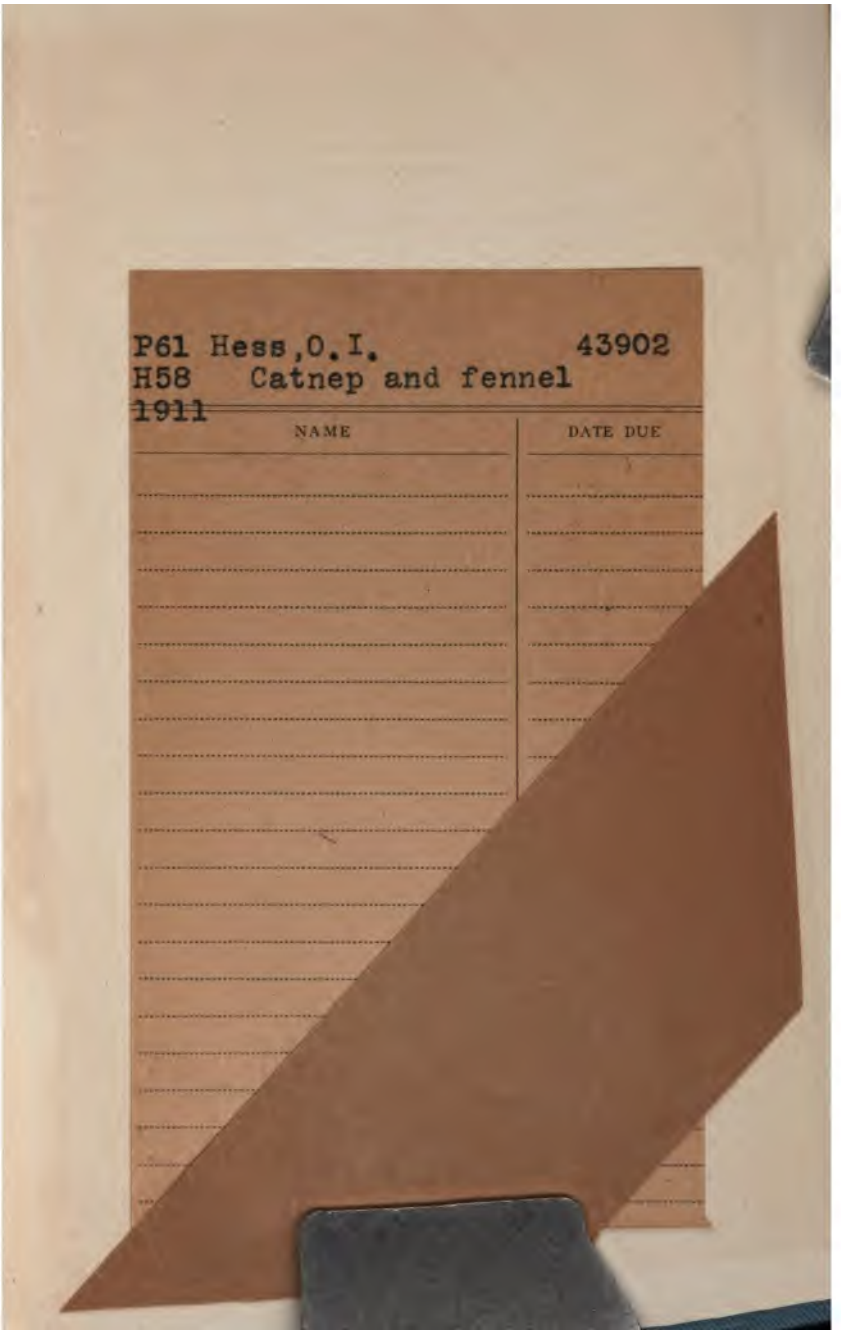
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